J. Bret Michael

Candidate Statement

Great strides have been made by the members of the IEEE Reliability Society and sister societies to address the challenges of attaining, maintaining, and measuring system reliability. However, recent events, such as the partial failure of the North American electrical power grid and the degradation of the quality of service of the Internet (due to the spread of the W32 Blaster computer worm), both of which resulted in substantial losses of tangible and intangible property (e.g., productivity and public trust), highlight the need for the Society to continue its scientific, literary, and educational activities to help both the public and private sectors improve the reliability and related properties (e.g., survivability and security) of systems. The bar is being raised all the time for improving reliability as ever increasing levels of automation are introduced into safety-critical systems. For instance, the advent of adaptive cruise control (ACC) and collision avoidance systems (CAS) have led the automobile industry to apply innovative means to attain ever higher levels of vehicle-system reliability due to both the fact that these systems have an active-control element and will be used by the average consumer rather than specially trained drivers of fleet-maintained vehicles. In fact, systems for which reliability was not considered to be of paramount importance have become Achilles' heels when integrated into a system of systems, in some cases, potentially affecting the security of nation states. As a member of the Administrative Committee, I would help lead the Society in the development and implementation of strategies to address the reliability of the systems of tomorrow in all aspects of the Society's activities. My background is well suited for this task, having strived over the past fifteen years to develop innovative solutions through applied research to a wide spectrum of vexing reliability problems that have arisen due to society's increasing reliance on ubiquitous software-intensive systems.

Biographical Information

Bret Michael is an associate professor of computer science with the Naval Postgraduate School (NPS). His past research appointments have been with the University of California at Berkeley (1994-1998), Argonne National Laboratory (1992-1993), and the Institute for Defense Analyses (1988-1992). He has been a member of IEEE since 1986, and was elected in October 1997 to the grade of senior member in recognition of his research on the reliability, safety and testability of automated vehicle control and safety systems. Dr. Michael is also a long-time member of both the ACM and IFIP. He serves on several advisory boards and steering committees for the U.S. Government, editorial boards of IEEE Software and the Journal of Information and Management (North-Holland), program committees of several IEEE conferences and workshops, and was the General Chair of the IEEE Third International Workshop on Policies for Distributed Systems and Networks. Dr. Michael's service to the reliability community dates back to 1990 when he worked as a volunteer in various capacities with the organizing committee of the IEEE Conference on Computer Assurance (COMPASS). Dr. Michael received his Ph.D. degree from the George Mason University School of Information Technology and Engineering (Fairfax, Va.) in 1993.